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Purpose to Standardize TG Well definition and programs for use in NOI/NDOM permitting

1. TG holes are meant to be geophysical tools to determining the temperature gradient of a resource area. They are not meant to enter the resource. They are not permitted to be used for flow testing or injection testing. They may not be converted to a different type of well. (See 8 below)
2. Use BLM section 3 of the Geothermal Operational Orders "Drilling Shallow Holes" as the starting point of approval for application using NOI
3. NOI submitted to BLM will be copied w/ attachments to NDOM upon receipt.
4. Operator will be informed that all TG holes must be individually permitted with NDOM prior to drilling.
5. TG holes limited to 500' depth, using truck mounted rig, no pad or minimal disturbance for stability of rig, no mud system, no tanks.
6. TG holes may be approved up to 1000' with approval from both agencies. BLM will require a plan with outlines how the extended depth is to be reached without further surface disturbance or ancillary facilities.
7. BLM GOO requires shut down or completion with casing as in observation wells if the temperature reaches 150F. NDOM concurs with this provision for consistency.
8. Casing completion as in an observation well, does not mean the well can be deepened or further used as an observation well. BLM tracking of NOI DOES NOT readily accept this change in well status. The well will remain a TG hole but if the operator wants to keep a hot or flowing TG well open then completion as an observation well is required for safety and stability. All other provisions of the original TG hole permit remain in effect including no flow testing.
9. TG holes will have a maximum life of 1 year. COAs should specify plugging within one year of completion. Completion is defined as securing the well and moving the rig off the hole.
10. NDOM plugging procedure requires 50' of cement at surface, this will be included in the COA's
11. The use of the term "slim hole" will not be acceptable. This is not a term used in regulation for either agency. TG or Observation, production or injection are the requisite terms.
12. Kettleman numbers will be required for all applications of Obs, Prod, and Injection wells. TG holes will provide kettleman numbers on their completion reports.

Casing Requirements per NDOM regulations for all wells including TG:

**NAC 534A.260 Requirements for casing.**

1. All wells must be cased in such a manner as to minimize damage to the environment, ground and surface waters, geothermal resources and property.

2. Except as otherwise ordered by the administrator, the completion equipment for a well must be attached to the surface casing. All casing, except conductor casing, which reaches the surface must provide adequate anchorage for equipment for the prevention of a blowout and control of the pressure in the well.

3. Surface casing must provide for control of formation fluids and protection of fresh water. The cement for the surface casing must be circulated up the annulus to the surface. If the cement does not circulate or falls back, the casing must be cemented at the surface. Sufficient casing must be set to reach a depth below all known or reasonably estimated levels of fresh water to protect those aquifers and to prevent blowouts or uncontrolled flows. Surface casing may not be set less than 10 percent of the proposed total depth of the well or a minimum of 50 feet, whichever is greater.